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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,943	06/01/2001	Seo Kyu Lee	DAES 105	8706

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EXAMINER	
WILSON, JACQUELINE B	

ART UNIT	PAPER NUMBER
2612	4

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/870,943	Applicant(s) LEE, SEO KYU	
	Examiner Jacqueline Wilson	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-7 and 14* is/are rejected.

7)☐ Claim(s) *8-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show elements Vta and Vtc as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 4, 5, 7, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Wayne (US 6,753,912).

Regarding Claim 1, Wayne teaches a CMOS image sensor comprising a pixel sensor (25) having a reset mode and for generating signal data (col. 4, lines 19+), a data I/O line (see fig. 2; the line connecting elements 25 and 30), a double sampling circuit (30 includes circuitry for correlated double sampling CDS; see col. 4), and an output circuit (30 includes circuitry for an ADC for outputting data), wherein the double sampling circuit samples the signal data before sampling the reset data (col. 4, lines 19+ teaches that in Phase 1 the signal is sampled first and in Phase 2, the reset signal is sampled next).

Regarding Claim 2, Wayne teaches a common junction node where the source of the reset transistor (T_6) connects the drain of the driving transistor (T_2). Wayne further teaches the drain of the reset transistor receives an externally supplied power voltage (20), a photo-diode (PD), the driving transistor (T_2) having the drain receiving external power voltage (Vdd), and a selecting transistor (T_1) transferring a source voltage of the

driving transistor to the data I/O line in response to a first selecting signal (col. 3, lines 50-56).

Regarding Claim 4, Wayne teaches the first selecting signal is a row-selecting signal for selecting a row of a pixel array (col. 3, lines 52-56).

Claim 5 is analyzed and discussed with respect to Claims 1 and 2. (See rejection of Claims 1 and 2 above.)

Claim 7 is analyzed and discussed with respect to Claim 4. (See rejection of Claim 4 above.)

Regarding Claim 14, Wayne teaches (a) providing CMOS image sensor having a plurality of pixel sensors arranged in row and columns (col. 3, lines 31-35) and that generates reset data during a reset mode and generates signal data depending on an amount of photo-charge produced in response to energy received externally comprising the steps of: (b) generating a read signal and activating a row-selecting signal for selecting on of the rows (col. 3, lines 32-55), (c) activating a data output signal (via column line N1), (d) outputting the signal data in response to the data output signal (col. 3, lines 52-56; col. 4, lines 19+), (e) driving the reset mode after the step (d) (col. 4, lines 29+), and (f) outputting the reset data (col. 4, lines 38+).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wayne in view of Levine et al (US 6,441,852).

Regarding Claim 3, Wayne teaches the reset transistor, the driving transistor, and the selecting transistor, as taught in Claim 1. Although Wayne fails to specifically disclose these transistors are each N-channel metal oxide semiconductor (NMOS) transistors, one having ordinary skill in the art would recognize that these transistors are NMOS technology. Levine et al teaches a similar configuration as Wayne including a reset transistor (M1), a driving transistor (M2), and a selecting transistor (M3), wherein each transistor is NMOS (col. 6, lines 10+). NMOS transistors use electrons to conduct current in the semiconductor channel and are notoriously well known in CMOS technology. Therefore, it would have been obvious to one having ordinary skill in the art to recognize that Wayne teaches the reset transistor, the driving transistor, and the selecting transistor are each NMOS transistors.

Claim 6 is analyzed and discussed with respect to Claim 3. (See rejection of Claim 3 above.)

Allowable Subject Matter

6. Claims 8-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art neither teaches nor fairly suggests a CMOS image sensor comprising a pixel sensor, a data I/O line, a double sampling circuit, and an output circuit for outputting data related to a voltage level of the output terminal, wherein the double sampling circuit samples the signal data before sampling the reset data, as claimed in Claim 1, wherein the double sampling circuit comprises a first transistor driving the data I/O line to a first reference voltage in response to a read command, and outputting a value related to the signal data, a coupling capacitor coupling a storing node with the data I/O line, a second transistor driving the storing node to a second reference voltage in response to a control signal, and **a third transistor transferring the voltage of the storing node to the output terminal in response to a second selecting signal.**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacqueline Wilson whose telephone number is (703) 308-5080. The examiner can normally be reached on 8:30am-5:00pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JBW
07/23/04

AUNG MOE
PRIMARY EXAMINER